

AMENDMENTS TO THE DRAWINGS

Please replace all drawing sheets containing Figures 1 to 18 currently on file with the attached replacement formal drawing sheets containing Figures 1 to 18. The attached sheets of drawings include changes to Figures 1 and 11. Figure 1 has been amended to change a reference numeral '72' to '74' and Figure 11 has been amended to delete one of the two reference numerals '326' to improve clarity.

REMARKS

Claims 1 to 20 are pending. In the Office Action, the Examiner raised a number of objections based on informalities. The Examiner rejected claims 1 to 20 under a judicially created doctrine of obvious-type double patenting and also rejected claims 1 to 20 based on anticipation and obviousness relying on three prior art references, namely U.S. Patent No. 4,631,386 to Slavens ("Slavens"), U.S. Patent No. 5,571,41 to Lantieri et al. ("Lantieri et al.") and U.S. Patent No. 4,144,992 to Omae et al. ("Omae").

The Office Action also objected to the drawings on the ground that the drawings include reference numerals not mentioned in the description. Two informalities in the description were also noted.

Objections to the Drawings

The Office Action asserts that the following reference numerals are shown in the figures but not mentioned in the description; '4', '2', '78', '10', '12'. The Applicant respectfully points out that reference numerals '4', '2', '10' and '12' are referred to in the description as indicated below:

- Reference numeral '4' is mentioned in the specification at page 9, line 4 in the brief description of Figure 4;
- Reference numeral '2' is mentioned in the specification at page 8, line 21 in the brief description of Figure 2;
- Reference numeral '10' is mentioned in the specification at page 10, line 2 in the brief description of Figure 10; and

- Reference numeral '12' is mentioned in the specification at page 10, line 7 in the brief description of Figure 12.

Regarding reference numeral '78', this reference numeral designates the output shaft described at page 14, line 9. The description has been amended to include the reference numeral.

The Applicant also amends Figures 1 and 11 to address the Examiner's further objection to these two figures. More specifically, Figure 1 has been amended to change a reference numeral '72' to '74' and Figure 11 has been amended to delete one of the two reference numerals '326' to improve clarity.

Objections to the Specification

The specification has been amended to correct a typographical error identified by the Examiner at page 2, line 5. In addition, the specification has been amended to add reference numeral '78' as explained above.

The specification has been further amended to add a paragraph in reference to the parent application (and its foreign priority) of the subjection application as requested by the Examiner.

Double patenting rejections

The Examiner rejected claims 1 to 20 under a judicially created doctrine of obvious-type double patenting as being unpatentable over claims 1, 3 to 5, 7 to 9, 11 to 13 and 15 to 18 of U.S. Patent No. 6,657,161, commonly owned by the Applicant. In

response, a terminal disclaimer in compliance with 37 CFR 1.321(c) is filed to traverse the Examiner's double patenting rejections.

Amendments to the Claims

Objections based on informalities

The Examiner objected to claims 2, 9 and 14 based on the informalities identified in the claims. The Applicant has amended the claims in response to the objections and also provides the following comments.

In claim 2, "moveable" is replaced with "movable" for consistency with other claims. In claim 9, first line, "feedback" is replaced with "a feedback" to provide proper antecedent basis. Claim 9 is also amended so now it does not have the term "control apparatus" which lacked antecedent basis. Claim 14 is amended to change "the third transport mechanism" to "a third mechanism" to provide proper antecedent basis.

Rejections based on prior art

Claims 1 to 20 were rejected as being anticipated by Slavens. Claims 1 to 6, 8 to 13, 19 and 20 were also rejected as being anticipated by Lantieri. Claims 7 and 14 to 18 were further rejected as being obvious over Lantieri in view of Omae.

Claims 1, 10 and 20 are independent claims. The Applicant amends claims 1, 10 and 20 to further recite the limitations that the welding apparatus includes a first motorized transport mechanism and a second motorized transport mechanism for moving the welding head in the first and second degrees of freedom, respectively, and a controller for actuating the first and second transport mechanisms to vary the position of

the welding head to follow a pre-determined trajectory while the welding head is in operation of forming a welding pass.

Claim 8, depending from claim 1, is also amended in light of the amendments to claim 1.

A welding apparatus including these additional features is not disclosed in either Slavens or Lantieri. Slavens discloses only that the position of a welding head may be adjusted by manually turning a knob, such as knob 35 (see, for example, col. 2, lines 42 to 53 and Figure 3). It does not disclose the utilization of motorized transport mechanisms for moving the welding head along a pre-determined trajectory directed by a controller. Similarly, Lantieri discloses only that the lateral position and vertical position of a welding head may be adjusted by manually turning adjusting knobs (see its Figure 9). While Lantieri teaches that a motor may be used to oscillate the welding head during welding, it does not disclose nor suggest the utilization of two motorized transport mechanisms for moving the welding head in the first and second degrees of freedom, respectively, and a controller for actuating the first and second transport mechanisms to vary the position of the welding head to follow a pre-determined trajectory while the welding head is in operation of forming a welding pass.

As such, it is respectfully submitted that the independent claims 1, 10 and 20, as amended, are not anticipated by either Slavens or Lantieri. In as much as claims 2 to 9 depend from claim 1 and claims 11 to 19 depend from claim 10, either directly or indirectly, and therefore incorporate by reference all limitations of either claim 1 or claim 10, it is respectfully submitted that claims 2 to 9 and 11 to 19 are patentable over

Slavens and claims 2 to 6, 8, 9, 11 to 13 and 19 are patentable over Lantieri as well for the same reasons above.

With respect to the obviousness rejections of claims 7 and 14 to 18 over Lantieri in view of Omae, the Examiner was of the view that Lantieri discloses the features of independent claims 1 and 10. Independent claims 1 and 10 are amended to include further features not recited in the claims as originally filed. As submitted above, Lantieri does not disclose all the limitations of either claim 1 or claim 10 as amended. Neither does Omae disclose any of the additional features recited in the amended claims 1 and 10. Nor does Lantieri or Omae suggest or provide any motivation to modify the welding apparatus disclosed to arrive at the invention as presently claimed. For at least this reason alone, claims 7 and 14 to 18 would not have been obvious having regard to Lantieri in view of Omae.

Conclusion

Applicants submit that the application is now in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner contact the undersigned attorney by telephone if it is believed that such contact will expedite the prosecution of the application.

In the event that this paper is not considered to be timely filed, Applicants respectfully petition for an appropriate extension of time.

The Commissioner is authorized to charge payment for any additional fees which may be required with respect to this paper to our Deposit Account No. 01-2300, making reference to attorney docket number 100570-00037.

Respectfully submitted,
ARENT FOX PLLC



Rustan J. Hill
Attorney for Applicants
Registration No. 37,351

Customer No. 004372
ARENT FOX PLLC
1050 Connecticut Avenue, N.W.,
Suite 400
Washington, D.C. 20036-5339
Tel: (202) 857-6000
Fax: (202) 638-4810

RJH/elz

Enclosures: Petition for Extension of Time
Replacement Figs. 1-18
Terminal Disclaimer